

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A data transmission apparatus for performing data communication based on optical transmission, comprising:

a transmitting unit for converting and sending electric communication data, ~~which is to be~~ transmitted[[,]] into optical communication data;

a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into ~~said~~ received electric communication data; and

a variable setting unit for setting said photoelectric conversion circuit to generate ~~predetermined~~ received electric communication data in response to an input level of ~~predetermined~~ said received optical communication data,

wherein said photoelectric conversion circuit comprises:

a light receiving unit for generating a current based on said received optical communication data; and

a comparator for comparing a current, the value of which indicates a magnitude of said current generated by said light receiving unit, with a reference current, and for generating said received electric communication data,

and wherein said variable setting unit comprises a variable current supply for setting said photoelectric conversion circuit by adding a predetermined current to said reference current or by subtracting a predetermined current from the current, the value of which indicates the magnitude of said current generated by said light receiving unit.

2. (Currently Amended) [[A]]The data transmission apparatus as claimed in claim 1, wherein said photoelectric conversion circuit comprises:

a light receiving unit for generating a current based on said received optical communication data; and

a signal generating unit for generating said electric signal based on said current generated by said light receiving unit, ~~and~~

wherein said variable setting unit comprises~~[[:]]~~ a variable current supply for setting said photoelectric conversion circuit by subtracting a predetermined current value from a current value indicating a magnitude of said current generated by said light receiving unit.

3. (Canceled).

4. (Currently Amended) ~~[[A]]~~ The data transmission apparatus as claimed in claim 1 further comprising:

a plurality of said transmitting units;

a plurality of optical waveguides for propagating pieces of said optical communication data sent from said transmitting units respectively; ~~and~~

a plurality of said photoelectric conversion circuits ~~in response~~ corresponding to said transmitting units respectively~~[[,]]~~;

~~wherein each of said~~ a plurality of variable setting units ~~of corresponding to said plurality~~ of photoelectric conversion circuits ~~sets for setting respective said corresponding~~ photoelectric conversion circuit to generate predetermined electric communication data in response to an input level of ~~predetermined~~ said received optical communication data.

5. (Currently Amended) ~~[[A]]~~ The data transmission apparatus as claimed in claim 1, wherein said variable setting unit sets said photoelectric conversion circuit based on a transmission delay time of said optical communication data and electric communication data between said corresponding transmitting unit and photoelectric conversion circuit.

6. (Currently Amended) ~~[[A]]~~ The data transmission apparatus as claimed in claim 5, further comprising at least one optical waveguide for transmitting said optical communication data,

wherein said variable setting unit sets said photoelectric conversion circuit further based on attenuation of said optical communication data ~~with regard to~~ in said ~~corresponding~~ optical waveguide.

7. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim 6, wherein said variable setting unit sets said photoelectric conversion circuit further based on an electro-optic conversion efficiency of said corresponding transmitting unit with regard to said electric communication data ~~with regard to said corresponding transmitting unit~~.
8. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim 7, wherein said variable setting unit sets said photoelectric conversion circuit further based on an photoelectric conversion efficiency of said corresponding photoelectric conversion circuit with regard to said optical communication data ~~with regard to said corresponding photoelectric conversion circuit~~.
9. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data, and said variable current supply subtracts a current value, which is substantially half said current generated by said light receiving unit when said optical communication data indicates H logic, from said current value generated by said light receiving unit.
10. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data, and said variable current supply subtracts a substantially average current value of said the current, ~~which is~~ generated by said light receiving unit when said optical communication data indicates H logic, ~~and said current, which is~~ and the current generated by said light receiving unit when said optical communication data indicates L logic, from said current value indicating said magnitude of said current generated by said light receiving unit.
11. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim ~~[[3]]~~1, wherein said optical communication data is digital data, and said variable current supply adds a current value, which is substantially half said current generated by said light receiving unit when said optical communication data indicates H logic, to a value of said reference current.

12. (Currently Amended) [[A]] The data transmission apparatus as claimed in claim [[3]]1, wherein said optical communication data is digital data, and said variable current supply adds a substantially average current value of said the current, ~~which is~~ generated by said light receiving unit when said optical communication data indicates H logic, ~~and said current, which is~~ and the current generated by said light receiving unit when said optical communication data indicates L logic, to a value of said reference current.
13. (Currently Amended) [[A]] The data transmission apparatus as claimed in one of claims 1-2 and [[to]] 4-10, wherein said transmitting unit comprises:
- a laser diode for generating said optical communication data based on said electric communication data; and
 - a bias current supply for supplying a bias current larger than a laser oscillation threshold current of said laser diode to said laser diode.
14. (Currently Amended) A test apparatus for testing an electronic device, comprising~~[[;]]~~:
- a pattern generating unit for generating a test signal to test said electronic device;
 - a waveform adjusting unit for adjusting said test signal;
 - a test head for contacting said electronic device;
 - a data transmission apparatus for transmitting data between said waveform adjusting unit and said test head; and
 - a judging unit for judging quality of said electronic device based on an output signal outputted by said electronic device in response to said test signal,
- wherein said data transmission apparatus comprises:
- a transmitting unit for converting and sending said test signal into optical communication data;
 - a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said test signal; and

a variable setting unit for setting said photoelectric conversion circuit to generate a predetermined test signal in response to an input level of ~~predetermined~~ said received optical communication data,

wherein said photoelectric conversion circuit comprises:

a light receiving unit for generating a current based on said received optical communication data; and

a comparator for comparing a current, the value of which indicates a magnitude of said current generated by said light receiving unit, with a reference current, and for generating said test signal,

and wherein said variable setting unit comprises a variable current supply for setting said photoelectric conversion circuit by adding a predetermined current to said reference current or by subtracting a predetermined current from the current, the value of which indicates the magnitude of said current generated by said light receiving unit.

15. (Currently Amended) A photoelectric conversion circuit for receiving light and converting said received light into an output electricity, comprising:

a photodiode for generating a current based on said received light; and

a variable current supply for generating a current to offset said current generated by said photodiode, wherein said output electricity is obtained directly by subtracting the offset current from said current generated by said photodiode, or by adding the offset current to said current generated by said photodiode.